

AV Controls

MIDI Machine Control Handbook

O P C O D E
S Y S T E M S I N C

AV Controls

MIDI Machine Control

MMC

Handbook

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Program by Andy Wolpert and Rick Johnston

Manual written by Charlie Ogden

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1 Getting Started	1
Introduction	1
Technical Support	1
2 Installation and Setup	2
Hardware Installation	2
Software Installation	2
Installing the Opcode MIDI System (OMS)	2
Installing AV Controls	3
OMS Setup for MMC	3
OMS Studio Setup	4
AV Controls Menu	6
The Transport Window	7
Device Control	8
Device Information	10
3 Using AV Controls for MIDI Machine Control	13
AV-Controls Setup	13
Sync Source Configuration	13
Transport Settings	13
Open Loop/Closed Loop Communication Setup	15
Device Control	15
Inpoint/Outpoint/Countoff	16
Locate	16
Looping	17
Recording	18
Striping a tape with SMPTE	18
Markers	18
Automatically Locating Markers	20
Importing, Exporting, and Printing Marker Lists	20
4 MIDI Machine Control with Vision or StudioVision	21
Setup	21
Sync Settings	21
SMPTE Offset	22
Device Control	23
Inpoint/Outpoint/Countoff	23
Searching to Counter Location	23
Markers	24
Recording to Tape	24
Scoring to Tape	24
Recording onto Tape	25
MMC with Non-Opcode Software	26
Index	27

1 Getting Started

INTRODUCTION

This manual describes how to use *AV Controls* for MIDI Machine Control.

AV Controls is an application which provides real-time remote control of MIDI Machine Control (MMC) devices. The functions of *AV Controls* can also be accessed through *Vision*, allowing you to control a MMC device while you are working in *Vision*.

Note: although this manual refers to using MMC with *Vision*, *AV Controls* may be used with *StudioVision* in the same manner.

Note: the term MMC is used throughout this manual to represent MIDI Machine Control. The term MTC is used for MIDI Time Code.

The *AV Controls* application requires:

- Macintosh with minimum 2Mb RAM and a hard disk.
- System 6.05 or higher
- OMS version 1.2 or higher

To use MMC with *Vision*, complete the setup procedures on pages 3 through 5 and 12 through 14, then see chapter 4, page 20.

TECHNICAL SUPPORT

For free technical support for the *AV Controls* software, complete the enclosed REGISTRATION CARD for *Vision* or *StudioVision* and mail to Opcode Systems.

Purchase Date: _____

Purchased From: _____

Serial Number: _____

When we receive your registration card, you will be entitled to free information about upgrades, updates, and new products. You'll also receive Opcode's newsletter, which contains the latest information on MIDI systems for the Macintosh, plus advanced tips and troubleshooting techniques.

Opcode technical support hours are (Pacific Standard Time):

- Monday - Friday: 9:00 AM to 6:00 PM
- Saturday: 11:00 AM to 5:00 PM

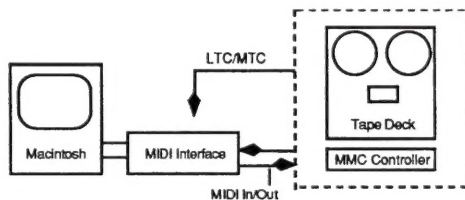
If you have a question, please try to find the answer in this manual. If you need further assistance, call (415) 856-3331 for technical support. Technical support hours are subject to change.

2 Installation and Setup

HARDWARE INSTALLATION

Make sure your MMC hardware is installed properly, according to the operations manual for each hardware device, and the following suggestions:

- Connect the MIDI IN and MIDI OUT from your MMC controller to your MIDI interface.
- Connect timecode out from your deck to the SMPTE LTC IN (Longitudinal Time Code) on both the MMC controller and the MIDI interface (may require a Y-cable).
- Make sure you are using a tape that is striped with SMPTE timecode.



MMC Hardware Configuration

Note: if your MMC controller converts LTC to MIDI Timecode, and you wish to use it instead of the MIDI Interface for converting timecode, follow the connection instructions provided with your MMC controller.

SOFTWARE INSTALLATION

Installing the Opcode MIDI System (OMS)

OMS version 1.2 or later must be installed before using *AV Controls*. If you are not familiar with OMS, please refer to the manual "*OMS: Getting started with the Opcode MIDI System*".

Installing AV Controls

AV Controls may be installed with *Vision*, or by itself (if *Vision* is already installed or you plan to use *AV Controls* without *Vision*).

To install AV Controls and the required AV OMS Driver when you install Vision:

- Use the Custom Installation option in the *Vision* Installer, and include "MMC - Device Control Software" with the custom options to be installed.
- Restart your computer.

To install only the device control software:

- Use the Device Control Software Installer on the *Vision* disk. Just click on Easy Install.
- Restart your computer.

Note: both installers will copy the *AV Controls* program onto your hard disk and put the AV OMS Driver in the OMS folder (located in the System folder). The AV OMS Driver allows one or more applications to send device control commands to MMC device(s). *AV Controls* will not control MMC devices if the AV OMS Driver is not properly installed.

To install the device control software without using the installers:

- Copy the file "AV OMS Driver" into the OMS Folder.
- Copy the *AV Controls* application anywhere on your hard disk.
- Restart your computer.

To de-install the device control software with the installer:

- Choose Customize in the installer window.
- Select the AV OMS driver.
- Hold down the option key. The Install button will say Remove.
- Click the Remove button.
- Restart your computer.

Note: to disable device control software, without de-installing, take the AV OMS Driver out of your OMS Folder and restart your computer.

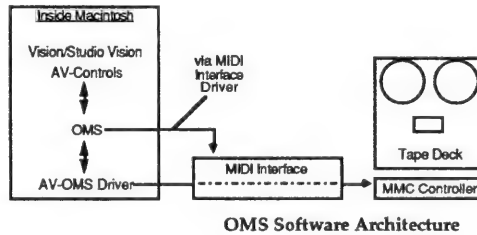
Important: if the AV OMS Driver is not properly installed in the OMS folder when you start your computer, a warning message will appear when you try to run AV Controls and the program will quit.

OMS SETUP FOR MMC

AV Controls uses OMS to recognize the MMC device in your MIDI studio setup. When you control a MMC device from *AV Controls*, the *AV Controls* program sends a message to OMS, which in turn looks for the AV OMS Driver (in the OMS folder). The driver translates the message into device control commands for the MMC device.

This architecture allows you to control MMC devices from any program that is compatible with OMS and the AV-OMS driver (e.g. *Vision* or *StudioVision*).

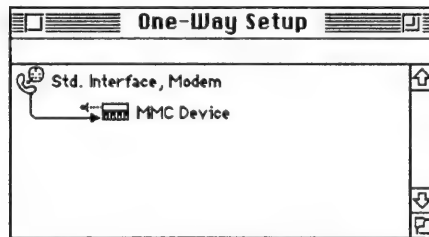
Currently, Opcode's AV-compatible applications (i.e. those which use the AV-OMS driver) include *OMS Setup*, *Vision/StudioVision 1.5*, and *AV Controls*.



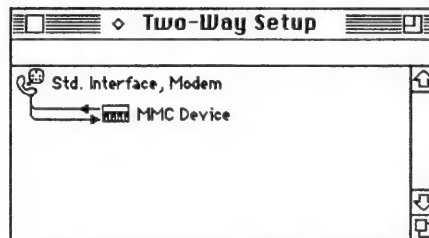
OMS Studio Setup

- Create an OMS Setup that shows to which MIDI Interface port(s) any MMC devices are connected.

In a one-way setup, only the MIDI Out cable is connected from the MMC Device (see diagram).



In a two-way setup, both MIDI In and MIDI Out cables are connected to the MMC Device (see diagram). A two-way setup may be used for two reasons: 1) to get MTC directly from the MMC device (in which case Sends MTC should be checked in MIDI Device Info window); or 2) if you are using closed loop communications (see the following paragraph).



MMC communications default is set to “open loop” regardless of whether you are using a one-way or two-way studio setup. Open loop communications refers to the command structure between *AV Controls* and the MMC device. In open loop communications, commands are sent from the controlling program (*AV Controls* or *Vision*) to the MMC device without requiring a response from the device.

You may also set MMC communications to closed loop (see Open Loop/Closed Loop Communication in Chapter 3: Using *AV Controls* for MIDI Machine Control). Closed loop communications *requires* a two-way studio setup, and may be used to monitor the MMC device location while locating, fast forwarding or rewinding, or to use the Test Device option. If you are using closed-loop communications, the program will issue commands to the device, then wait for the device to perform the desired function (cue, play, record, etc.). If you are not familiar with the need for closed loop communications, we recommend that you use open loop.

- Choose **New Device** from the **Setups** menu to add the MMC device to your current studio setup. The MIDI Device Info window will appear.

MIDI Device Info

Manufacturer: (other) ▼

Model: (other) ▼ Device ID: 1

Name: MMC Device

☐ Is controller

☐ Is multitimbral

Options: [Menu Icon]

Receive Channels															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X															

Receives		Sends	
MIDI Time Code			
MIDI Beat Clock			

Icon... Cancel OK

MIDI Device Info Window

- Enter any name for the device.
- From the **Options** pop-up menu, choose **Uses MIDI Machine Control**.

Options: ✓ Uses MIDI Machine Control
Uses ARTinet

Options Menu in MIDI Device Info Window

- If the device outputs MIDI Timecode, check the **Sends MTC** box.
- Set the Device ID in this window to match the ID of the MMC device.
Note: in order to set the Device ID to "0" you need to check the **Is multitimbral** box; otherwise, OMS will set the Device ID to match the channel of the device.
- Click OK.
- Save the current OMS setup. If this is not the current setup (i.e. there is no diamond next to the name in the title bar), choose **Save and Make Current** from the File menu.

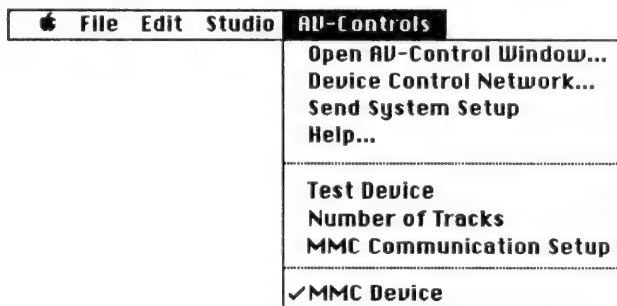


Current Studio Setup

The new studio setup is now displayed in the Studio Setup window. Do not quit the OMS Studio Setup application; continue to the next section.

AV Controls Menu

Note that, because the AV OMS Driver is installed, a menu labeled AV Controls appears in the menu bar.



AV Controls Menu

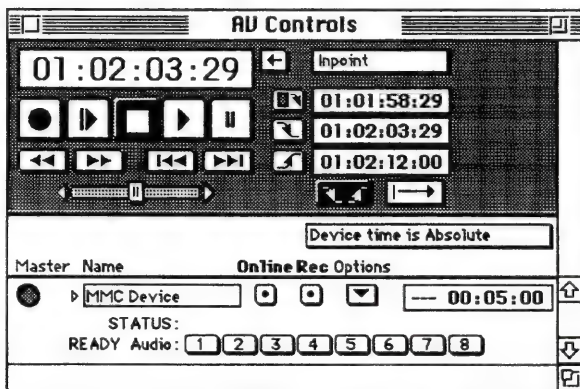
If the AV OMS driver was properly installed, there will be a list of all MMC devices included in the Studio Setup at the bottom of this menu.

The **Open AV-Control Window** command at the top of the menu will launch the *AV Controls* application.

The **Device Control Network** command re-initializes the AV OMS driver. This command is performed automatically when you change your studio setup. If you are experiencing a communication problem with one or more of your MMC devices, or the devices don't show up in the AV Controls menu, you should perform this command (by choosing from the menu).

THE TRANSPORT WINDOW

- While the OMS Studio Setup application is still running, choose **Open AV-Control Window** from the AV Controls menu. This will display the Transport window.



Transport Window - One MMC Device

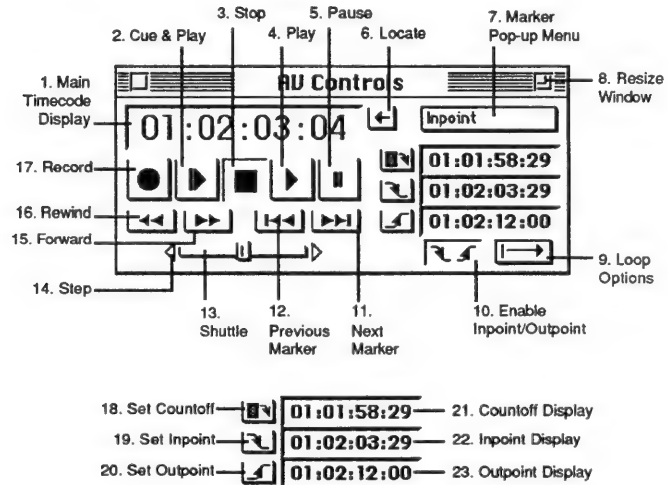
The Transport window is the main *AV Controls* window. The top half of the Transport window is the Device Control section; the bottom half is the Device Information section. The resize window button in the upper right corner toggles the size of the window in order to display the Device Control section only or both the Device Control and Device Information sections.

When the Transport window is open, the Transport window selection in the AV Controls menu also toggles the size of the window.

If you have more than one MMC device, the device information section in the bottom half of the window will display information for each device.

Device Control

Transport controls and timecode displays perform the following functions:



1. Main Timecode Display Displays current timecode location of the MMC device when in play, fast forward, or rewind. Displays marker point location when you select a marker from the marker pop-up menu. Displays a timecode value that you enter to send the device to a specific location.

2. Cue and play button Sends device to countoff location (cue point) and then into play. If timecode displays are turned off (Enable Inpoint/Outpoint button) the cue and play button functions only as a play button.

3. Stop button Puts device in stop.

4. Play button Puts device into play from its current location. Note that this is different from the play button in *Vision*, which plays from the number in the counter.

5. Pause button Puts device in pause.

6. Locate button Sends device to location as shown in the Main Timecode Display.

7. Marker pop-up menu Displays the names and timecode locations of all the markers you have created. There will always be at least three markers in this menu: the current Countoff, Inpoint, and Outpoint.

8. Resize Window button Toggles size of window to display Device Control only or Device Control and Device Information.

9. Loop Options button Only active when timecode displays are ON. There are four loop options (from top to bottom): play from countoff to outpoint then pause; play from countoff and keep playing; play from countoff to outpoint, re-cue to inpoint and pause; and continuous loop from countoff to outpoint.

10. Enable Inpoint/Outpoint button Toggles to enable and disable the inpoint and outpoint displays. Disabling timecode displays allows you to control the device as if no inpoint or outpoint values were set. When the timecode displays are OFF, the cue and play button is identical to the play button.

11. Select Next Marker Sends the device to the location of the first marker with a time later than the current timecode location.

12. Select Previous Marker Sends the device to the location of the first marker with a time earlier than the current timecode location.

13. Shuttle bar This is a variable speed search. Not available for most MMC devices.

14. Step arrows Clicking on these arrows will cause the device to step one frame in the forward or reverse direction. Not available for most MMC devices.

15. Forward button Puts device in fast forward.

16. Rewind button Puts device in fast rewind.

17. Record button Puts device into record, if device is a recorder and record enable is on (see Device Information).

18. Set Countoff button Sets the countoff position (or preroll duration). The default minimum preroll is five seconds.

19. Set Inpoint button Allows you to set the current inpoint. Clicking the inpoint set button will capture the timecode value in the Main Timecode Display as the inpoint.

20. Set Outpoint button Allows you to set the current outpoint. Clicking the outpoint set button will capture the timecode value in the Main Timecode Display as the outpoint.

21. Countoff display Displays current countoff value. You may change the value by clicking and dragging any of the numbers within the display.

Note: the countoff display may be set in the Preferences window to display either absolute countoff timecode position (equal to inpoint position minus preroll) or relative countoff timecode position to the inpoint (preroll duration).

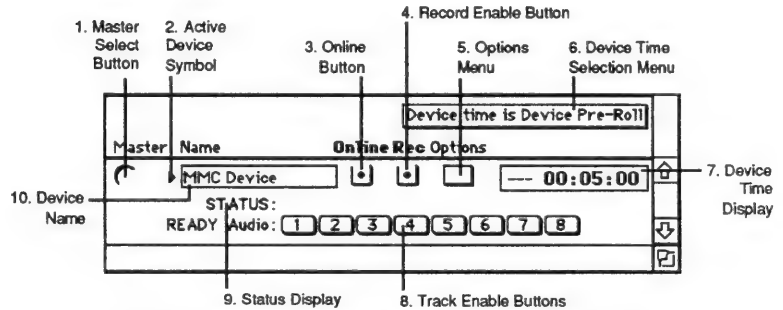
22. Inpoint display Displays the current inpoint. You may change the value by clicking and dragging any of the numbers within the display.

23. Outpoint display Displays the current outpoint. You may change the value by clicking and dragging any of the numbers within the display.

Note: you can control your MMC device by clicking device control buttons in the Transport window, or with shortcut keys on the keyboard. You can view a list of shortcut keys by choosing "Help..." from the *AV Controls* menu.

Device Information

The Device Information section of the Transport window displays all current information for each MMC device connected to your system. The scroll bar on the right side of the window becomes active when you are controlling more than one device.



1. Master Select Button If you have one MMC device, it will always be the master. If you have two or more devices, you can select which will be the master by clicking the master select button next to the device. The master is the device whose timecode appears in the Main Timecode Display. The master always has offset of 00:00:00:00; markers and locations are always relative to the master timecode.

Note: *AV Controls* will let you control multiple devices, however this feature may not be used as a substitute for chase lock control hardware. The devices will not be synchronized.

2. Active Device Symbol The small triangle to the left of the device name shows which device is currently selected. The options in the middle section of the *AV Controls* menu pertain to the selected device. The selected device is also displayed as the checked device in the *AV Controls* menu.

3. Online button Turns the device online for control. When the online button is depressed, you can control the device. When it is not depressed, you cannot control the device. **Note:** if there is no device connected, clicking the Online button into the off position will cause the transport control buttons to stop blinking.

4. Record Enable button This button is a safety feature that helps ensure that you do not inadvertently record over previously recorded material when you do not want to. When depressed, you can put the device into record by clicking the Record button in the top of this window.

5. Options menu The items in the Options menu are also available in the AV Controls menu, and pertain to the selected device.

Test Device Verifies that the device is online.

Number of Tracks Opens the Number of Tracks dialog, which lets you set the number of audio (and video) tracks for your device.

MMC Communications Setup Allows you to set open loop or closed loop communications, or suppress MMC transport commands (see Open Loop/Closed Loop Communications Setup in Chapter 3).

6. Device Time Menu Pop-up window with three choices: Absolute, Offset, and Device Preroll. The Device Time setting lets you select which of the three options you would like displayed in the Device Time display next to each device.

Absolute Displays the actual timecode location of the device.

Offset Displays the timecode offset of each device's current location from the current location of the master device. The master device offset will always be 00:00:00:00; the offset of other devices can be positive or negative depending on whether the device is ahead of or behind the master.

Device Preroll Displays the current minimum preroll for each device. You may set the minimum preroll by clicking and dragging any of the numbers in the preroll timecode display. Default preroll is five seconds (00:00:05:00).

7. Device Time Display Displays the currently-selected device time (absolute, offset, or device preroll) for each device.

8. Track Enable Buttons The number of Track Enable buttons displayed for each device depend on the settings you have stipulated in the Number of Tracks window for that device.

Each Track Enable button is a toggle. Click once to turn on, and the button will be highlighted. Click again to turn the track off.

9. Status Display Shows the current status of the device. The status display is included for general information, and will not affect system performance.

10. Device Name Every Device can be given a 31-character name. If the system is unable to determine the name of a device, it will be "My Device".

3 Using *AV Controls* for MIDI Machine Control

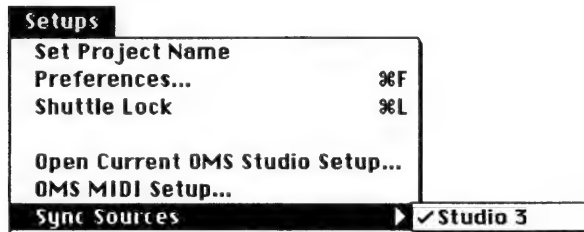
As a stand-alone application, *AV Controls* turns your Macintosh into a front-end controller for your MMC device(s).

AV-CONTROLS SETUP

Sync Source Configuration

The Sync Sources list in the Setups menu lets you designate the source of MIDI sync/MTC for *AV Controls*. The Sync Sources pop-up menu will display all sources of MIDI sync in your system (as derived from your current OMS setup).

For MMC, the sync source should be a MIDI interface, a timecode converter, or the device itself if it can convert timecode to MTC.

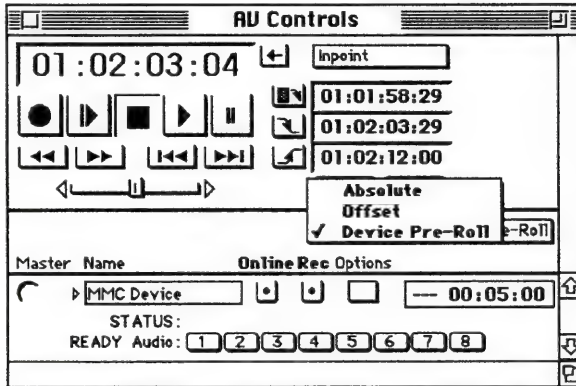


Sync Sources

Transport Settings

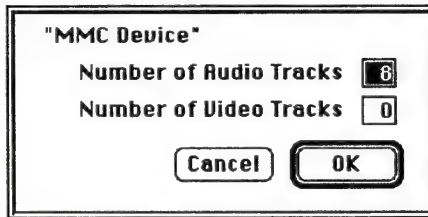
Make the following transport setting changes in the Transport window, if appropriate:

- To change the name of your device, type a name in the name window.
- Make sure the Online button is in the depressed position (default). When the device is online, it will respond to transport control commands.
- Choose **Device Preroll** from the Device Time pop-up menu. This will display the preset preroll time for the device in the Device Time Display. Set the preroll time to an appropriate value for your device. Default is five seconds (00:00:05:00).



Device Time Pop-up

- Choose **Number of Tracks** from the Options pop-up menu and set the number of audio (and video) tracks for your device.



Number of Tracks Window

Note: in some cases, multiple devices function like one device with multiple tracks.

Open Loop/Closed Loop Communication Setup

The communications setup determines how the controlling program (*AV Controls* or *Vision*) will talk to the MMC device.

- To change the communication setup, choose **MMC Communication Setup** from the Options pop-up in the Transport window or from the AV Controls menu.

MMC Communications Setup for: MMC Device

☒ **Use Open Loop communications**
Use open loop communication for most MMC operations and devices

☐ **Use Closed Loop communications**
Use closed loop communications when close monitoring of device status and timecode is necessary. Only use this option if the MMC device responds to both status and timecode request messages.

☐ **Suppress MMC Transport Commands**
Use this option when an MMC device is being a slave to another MMC device or an external timing source. With this option checked, transport control commands are not sent to the device.

MMC Communications Setup Dialog

Open loop is the standard, in which the program simply issues commands to the MMC device.

Closed loop communications may be used when you need to monitor device status more closely (while locating, fast forwarding, or rewinding) or if you wish to use the Test Device option to verify that the MMC device is online and communicating properly. *Closed loop communications requires a two-way studio setup* (see OMS Studio Setup in Chapter 2: Installation and Setup).

Suppress MMC Transport Commands may be used when you do not want transport control commands to be sent to your MMC device (e.g. if it is set up as a slave to another device or another timecode source). Suppress MMC Transport Commands does not disable record abilities (punch in and punch out).

DEVICE CONTROL

With *AV Controls* you can control your MMC device by clicking device control buttons in the Transport window, or with shortcut keys on the keyboard. You can view a list of shortcut keys by choosing "Help..." from the *AV Controls* menu.

For a description of transport control buttons, see “The Transport Window” description in the preceding chapter.

If you are using a closed-loop setup, when you click any transport control button, the button will begin blinking as the command is sent to the device. Once the device has received the command, the button will stop blinking and become highlighted. If you are using an open-loop setup, the transport buttons will blink until valid timecode is received.

Note: the shuttle (scrub) and step (one frame forward or backward) commands do not function for most MMC devices.

Inpoint/Outpoint/Countoff

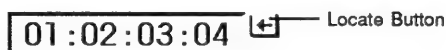
If the Enable Inpoint/Outpoint button is activated (in the depressed position), the Cue and Play button (or the space bar) will send the device to the current inpoint-minus-preroll position and then play.

If the Enable Inpoint/Outpoint button is not activated, the Cue and Play button functions just like the Play button, and looping options are disabled.

Note: if the Enable Inpoint/Outpoint button is not activated, the inpoint, outpoint, and countoff timecode displays will be grayed.

Locate

The locate button will send the device to the timecode value displayed in the Main Timecode Display.



While you are controlling your device, the value in the Main Timecode Display reflects the current position of the device.

To send the device to a specific timecode location:

- Make sure that the *Play from inpoint and keep playing* setting is displayed in the loop options pop-up menu box. Loop options are described in the next section.



- Enter a new timecode value in the Main Timecode Display.
- Click the locate button. The device will search to the new location.

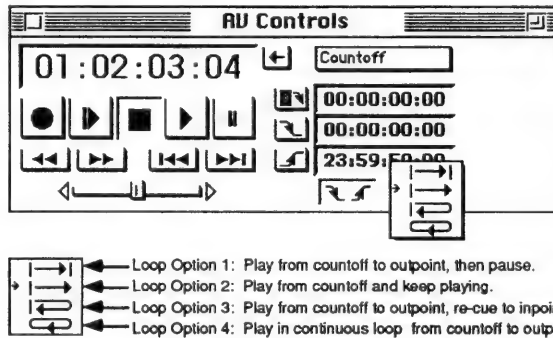
Note: if the device is in play when you locate, it will search to the new countoff position (marker point minus preroll) and continue to play. If the device is in pause or stop when you locate, it will search to the exact timecode location and pause.

The locate feature is activated automatically when you select Next Marker or Previous Marker. The Next Marker or Previous Marker commands will send the device to the timecode location of the marker that is either immediately before or immediately after the value in the Main Timecode Display.

If you have selected Auto Locate from Markers Menu in the Preferences window, then your device will automatically search to the marker location when you select a new marker from the Marker Pop-up Menu.

Looping

The four loop options apply whenever the device is in Play and reaches the outpoint.

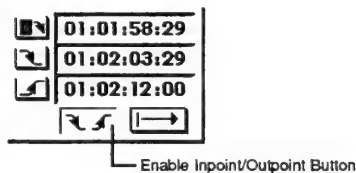


Loop Options Pop-up Menu

To use looping:

- Set inpoint and outpoint values by entering them into the inpoint/outpoint timecode display or searching to the desired location and clicking the inpoint/outpoint set button. *The inpoint should always be set before the outpoint.*

Note: if inpoint and outpoint timecode displays are gray, click the Enable Inpoint/Outpoint button to activate the displays.



- Select the desired loop option from the pop-up menu.
- Click the Cue & Play button.
- To cancel, click Pause.

Recording

To activate the record function from *AV Controls*:

- Record-enable your device by clicking on the **Rec** button in the Device Information section of the Transport Window.
- Record-enable the tracks onto which you wish to record by clicking on each track button (highlighted = enabled).
- If the in/out points are enabled (Enable Inpoint/Outpoint button highlighted), start recording by clicking the Record button or pressing the Tab key. The device will position at the countoff, roll, and punch in at the inpoint, out at the outpoint.
- If the in/out points are not enabled, the device will begin recording from its current location.

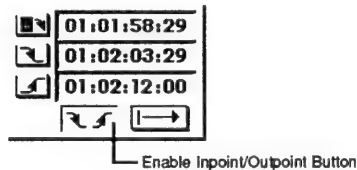
Note: while the device is playing, you may punch record on any enabled tracks by pressing the Record button. While recording, you may punch out by pressing the Record button.

You may also record while in *Vision* (see “Recording onto Tape” in Chapter 4).

Striping a tape with SMPTE

You may control your MMC device with *AV Controls* while striping a tape with SMPTE timecode by disabling the inpoint and outpoint.

- Click the Enable Inpoint/Outpoint button in the Transport window to disable the inpoint and outpoint (the displays should become gray).



- Use the transport control buttons (play, stop, etc.) as you normally would on the front panel of your device.

Note: while striping with a MIDI Interface, you will still see timecode in the Transport window display.

MARKERS

A marker list created in, or imported into *AV Controls* can be used from within *AV Controls*, printed, or exported as a MIDI file for use in *Vision*, or *StudioVision*.

- Open the Transport window by choosing **Transport Window** from the *AV Controls* menu.

- Open the Edit Markers window by choosing **Markers Window** from the *AV Controls* menu.

Notice that in both windows there is a pop-up menu which contains your current marker list. There will always be at least three items in your marker list: the Countoff, Inpoint, and Outpoint. The timecode values associated with these three markers will change dynamically when you change the values in the Countoff, Inpoint, and Outpoint displays in the Transport window.

The timecode values of all other markers will not change unless you specifically edit the values. To create new markers:

- Position the device at the desired marker location.
- In the Edit Markers window, click **New**. Note that markers may be created while the device is paused, or on the fly.



Edit Markers Window

- Choose **Insert Marker** from the Edit menu (or type command-;) to bring the current timecode location into the Marker Time box; or type the desired timecode value into the Marker Time box.
- Type a name for the new marker in the Marker Name box. If you do not type a new name, its name will be "Untitled #".

Note: if the Edit Markers window is not open, choosing Insert Marker from the Edit menu (or typing command-semicolon) will open the Edit Markers window and bring the current timecode location of the MMC device into the Marker Time box.

- Click Enter to enter the marker information into the marker list.
- To create a new marker, click **New**.

*Note: while a current marker is displayed, do not change the marker name or marker time unless you wish to edit the name or time of the current marker. To enter a new marker, click **New** then enter the new name and time.*

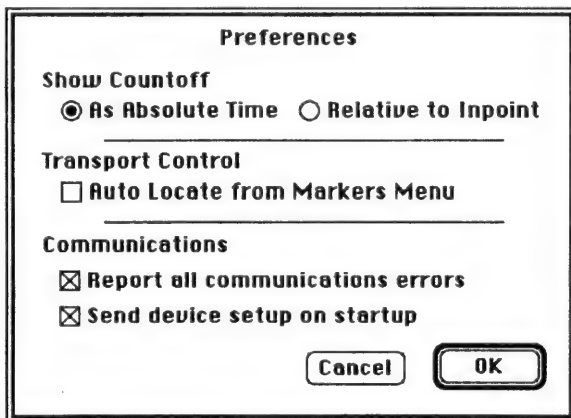
You may create a series of markers in real time, without naming each marker as follows:

- Put the device into play.
- Type command-semicolon at each marker point as the device is playing.

- When finished, put the device in stop then name the markers.

Automatically Locating Markers

If the Auto Locate from Markers Menu box is checked in the Preferences window, *AV Controls* will send the device to the marker location automatically when you select a marker from the pop-up marker list in the Transport window.



Preferences Window

With auto locate enabled, if the device is in pause or stop when you choose a new marker, it will search to the exact marker point and pause. If your device is in play when you choose a new marker, the device will search to the marker countoff position (marker point minus preroll) and continue to play.

Importing, Exporting, and Printing Marker Lists

Marker lists that you create in *AV Controls* or *Vision/StudioVision* may be interchanged because they are saved as MIDI files.

The **Import MIDI File** and **Export MIDI File** commands in the **File** menu can be used to open a marker list which was previously saved as a MIDI file and save a marker list as a MIDI file, respectively.

Technical Note: *AV Controls* will import any "type 6" marker events in the MIDI file.

The **Copy MIDI File** and **Paste MIDI File** commands in the **Edit** menu can be used in the same way, except the un-named MIDI file resides on the clipboard. This is a convenient way to get markers from *AV Controls* to *Vision / StudioVision*.

To print your current marker list from *AV Controls*:

- Choose **Set Project Name** from the Setups menu, enter a name, and click OK. This name will appear on the top of your printed marker list.
- Choose **Print** from the File menu.

4 MIDI Machine Control with *Vision* or *StudioVision*

Vision and *StudioVision* use the AV OMS Driver to send device control commands to MMC device(s), so that the devices will “follow” your MIDI sequence.

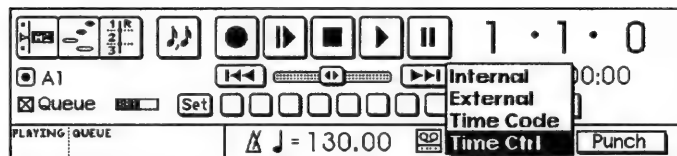
SETUP

This section describes how to set sync sources and SMPTE offset so they are compatible for both *Vision/StudioVision* and *AV Controls*.

- Launch *Vision*.
- From the *Vision* Setups menu, choose *Open AV Controls*.

Sync Settings

In the latest versions of *Vision* and *StudioVision* (1.5 and higher), a new sync setting called MTC/Machine Control (abbreviated TimeCtrl) has been added to the list of *Vision* sync settings. This setting is only available when the AV OMS Driver is active in the OMS folder.



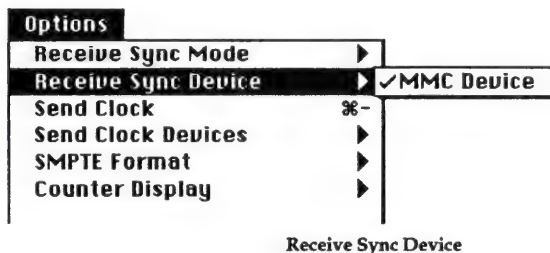
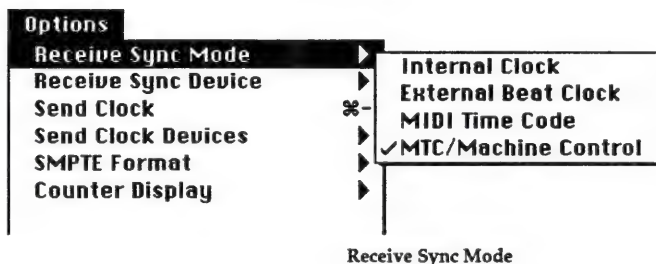
Vision Control Bar

Using the TimeCtrl mode for device control is similar to using the Timecode mode in that *Vision* sequences are recorded and played synchronized to MTC, which can come from a MIDI Interface or any device that converts audio timecode (LTC) to MTC.

The TimeCtrl setting is designed for controlling tape decks and other external devices. This setting turns *Vision*'s transport commands (play, stop, record, locate, locate to marker) into commands that control the MMC device.

In TimeCtrl mode, when you play a sequence, *Vision* will wait for the MMC device to cue and play before playing the sequence.

- In the *Vision* Options menu, set the **Receive Sync Mode** to be **MTC/Machine Control**, and the **Receive Sync Device** to be your sync source. Note: when you change the Receive Sync Device in *AV Controls*, the change will be reflected in *Vision*.



SMPTE Offset

Once you have specified the appropriate SMPTE offset in *Vision*, your device(s) will "follow" the current sequence location.

The timecode offset and the meter and tempo tracks for each *Vision* sequence will determine the relationship between beat-and-bar positions and timecode locations on tape. Bar one, beat one will be the exact SMPTE offset of the sequence.

The offset will correlate the beginning of your sequence (bar one, beat one) to any timecode location on the tape in your device. The offset must be set for each new *Vision* sequence or new tape.

When you put a *Vision* sequence into play, the AV OMS Driver tells the MMC device to play from the SMPTE Offset. So if the offset is 00:00:00:00, the device will try to locate to this point and play.

Since most devices require a pre-roll, offset locations should be positioned well away from the beginning of a tape.

To set the SMPTE Offset:

- Open a new *Vision* sequence window.
- With the device control buttons in *AV Controls* or *Vision*, find the timecode location at which you want the sequence to start. The current SMPTE location is displayed in the counter in the *Vision* control panel.

- Enter the timecode location as the offset timecode position in the sequence window, or click on the word **OFFSET** in the sequence window; the SMPTE time shown in the control bar will become the offset.

DEVICE CONTROL

The *Vision* transport commands which can be used for MMC include play, pause, stop, locate, and record. You may open the *AV Controls* Transport window to also use forward and rewind when not working with a sequence.

When *Vision* is set to TimeCtrl mode, the AV OMS Driver causes the device(s) to follow the sequence during play, record, looping, go to marker, and go to timecode location/auto-locator point.

In TimeCtrl mode, when you click play (or press space bar) in *Vision*, the MMC device will cue to the inpoint (as determined by the SMPTE offset), then play.

Inpoint/Outpoint/Countoff

Vision allows you to specify the inpoint, outpoint, and countoff in musical time. These values are translated into SMPTE times by *AV Controls*, and the SMPTE times are used to control the MMC device.

The inpoint for the MMC device will be the *Vision* inpoint, adjusted by the SMPTE offset. The countoff will be determined by the longest of (a) the *Vision* countoff, or (b) the preroll of the MMC device (the longest preroll if you are using more than one MMC device).

Note that when you change the inpoint, outpoint, and countoff values in *Vision*, they are reflected in *AV Controls*. However, changing these values in *AV Controls* will not change the values in *Vision*.

Looping

With the loop button highlighted, both the sequence and the MMC device will loop from the sequence inpoint to the sequence outpoint. However, *Vision* will not remain in record mode while looping. External tracks can be recorded on the first pass, and will play on subsequent passes.

In TimeCtrl mode, *Vision* will not record MIDI or digital audio when in loop record (loop button highlighted).

Searching to Counter Location

In TimeCtrl mode, issuing the play-from-beginning command in *Vision* causes both the sequence and the MMC device to cue, then play. The sequence will wait for the device to cue before playing. Pressing enter will send the MMC device to the counter location.

Stopping

In TimeCtrl mode, when a sequence which was playing ends, and *Vision* is not recording (*Vision*'s record button is not highlighted), the MMC device will also stop at the end of the sequence.

Similarly, when "Stop at punch out" is checked (in the *Vision* Setups menu), both *Vision* and the MMC device will stop at the punch out point.

MARKERS

While *Vision* and *AV Controls* are both running and *Vision* is in TimeCtrl mode, markers created in *Vision* will be displayed in the *AV Controls* marker pop-up menus. However, if you change the marker information in *AV Controls*, the changes will not be reflected in *Vision*.

When you change sequences in *Vision*, the markers and SMPTE offset will be updated automatically in *AV Controls*.

Markers in *Vision* will be displayed in beat-and-bars or timecode format. The same markers will be displayed in *AV Controls* in timecode format.

Vision maintains a set of markers for each sequence in the meter track.

RECORDING TO TAPE

This section describes the processes of scoring to music on tape and recording a completed sequence to tape.

Scoring to Tape

To score a sequence to tape:

- Make sure your tape has been striped with valid timecode, that the timecode is being read by *Vision*, and that the MIDI sync settings in *Vision* and *AV Controls* are set correctly.
- Make sure the device is online (i.e. the online button in the *AV Controls* Transport window is depressed) and that you can control the device from the *Vision* control panel.
- Position the tape to the location at which you wish to start the sequence.

The timecode location in the vision control bar should match the current tape position. Put the device into play by pressing the play button in *AV Controls*. This will allow the device control software to read the timecode from the device, and should update the number in the vision control bar.

- Open a new sequence window and set the SMPTE offset to be the starting timecode value by typing a number into the Offset Field or by clicking the word OFFSET in the *Vision* sequence window, to use the current tape location as the offset.



Vision Offset Field

- Record select a track in the current sequence.
- Set the metronome if you want a click.
- Choose a record mode (punch, replace, or overdub).
- Set a countoff, if you want one.
- Use loop mode if you want to rehearse a section repeatedly.
- Click the Record button or press the tab key.
- Create music (if using a preroll, wait for the tape to get to inpoint).
- Play the sequence by clicking the play from inpoint button. The sequence will cue as the device searches to its countoff position (inpoint minus preroll). The sequence will wait for the starting timecode value as the device plays through its preroll. At the inpoint, the sequence will start. You may adjust the sequence offset if you want the sequence to start earlier or later in relation to the MMC device inpoint.

Recording onto Tape

You can record a sequence to tape using the record commands in *AV Controls*. The following procedure assumes that you are using a tape has been striped with valid SMPTE timecode.

The *AV Controls* Transport window *must* be open in order to record to tape from *Vision* or *StudioVision*.

- In the *AV Controls* Transport window, click the record enable button, and enable the audio track(s) onto which you wish to record the sequence. If timecode is on an audio track, do not record over the timecode.

Note: in order to record, the Transport window must be open, the device must be record-enabled (Rec button highlighted), and the destination track(s) must be enabled (highlighted).

If the Transport window is open, the MMC device is record enabled, and one or more tracks are enabled in *AV Controls*, a small tape deck icon will appear in the left side of the *Vision* control bar indicating that when you choose the record command in *Vision*, the tracks will be recorded on the device:



External Track Record-Ready Indicator

- Put *Vision* in Internal mode and play the sequence to set audio level for recording.
- Put *Vision* in TimeCtrl mode.
- Click the Record button in the *Vision* control bar. The device will cue to its countoff position, then the device and the sequence will begin playing. The device will punch into record at the inpoint and out at the outpoint.

MMC WITH NON-OPCODE SOFTWARE

AV Controls can be used with non-Opcodes sequencing software for two purposes: remote device control, and working with marker lists.

For remote control, put your sequencer into SMPTE sync mode and use *AV Controls* as a remote controller for your device, as outlined in the Device Control section of this manual.

If your sequencer can export marker events as a MIDI file with text events, they can be imported to *AV Controls* as markers.

Index

Absolute 11
Active Device 10
Auto Locate 16, 19
AV OMS Driver 3, 6, 21

Closed loop 14
Closed loop communications 5
Converting timecode 2
Copy MIDI File 19
Countoff 18, 22
Countoff display 9
Cue and play button 8

Device Control 7
Device Control Network 6
Device ID 6
Device Information 7, 10
Device Name 11
Device Preroll 11, 12
Device Time 12
Device Time Display 11
Device Time Menu 11

Edit Markers window 18
Enable Inpoint/Outpoint 9, 15, 17
Export MIDI File 19

Forward button 9
Hardware Configuration 2

Import MIDI File 19
Inpoint 16, 18, 22
Inpoint display 9
Insert Marker 18
Installer 3
Is multitimbral 6

Locate button 8, 15
Loop Options 8
Looping 16, 22

Main Timecode Display 8, 15
Marker list 17, 19
Marker Name 18
Marker pop-up menu 8
Markers 18, 23
Master 10
Meter track 23
MIDI file 19
MIDI Interface 4
MIDI studio setup 3

MMC Communication Setup 14
MMC Communications Setup 11
MTC/Machine Control 20

Next Marker 16
Number of Tracks 11, 13

Offset 11
OMS 3
OMS Folder 3
OMS Setup 4
One-way setup 4
Online button 10, 12
Open loop 14
Open loop communications 5
Options menu 11
Outpoint 16, 18, 22
Outpoint display 9

Paste MIDI File 19
Pause button 8
Play button 8
Pre-roll 21
Preferences 19
Previous Marker 16

Receive Sync Device 20
Receive Sync Mode 20
Record button 9
Record Enable 10
Record-enable 17
Recording 17, 23
Remote control 25
Rewind button 9

Scoring 23
Scrub 15
Select Next Marker 9
Select Previous Marker 9
Set Countoff button 9
Set Inpoint button 9
Set Outpoint button 9
Set Project Name 19

Shortcut keys 14
Shuttle bar 9
SMPTE offset 21, 23
Status Display 11
Step arrows 9
Stop at punch out 22
Stop button 8
Striping a tape 17
StudioVision 17
Suppress MMC Transport Commands 14

Sync settings 20
Sync Sources 12

Test Device 11
TimeCtrl 20
TimeCtrl mode 22
Track Enable Buttons 11
Transport commands 22
Transport controls 8
Transport window 7, 10, 12
Two-way setup 4

